

Claim Amendments
Including a complete listing of all claims

1-8 (Canceled)

9. (Currently Amended) A beadlock ~~according claim 8~~ comprising an insert casing and a bead spacer for providing an air passageway in a vehicle tire to be mounted on a wheel rim on which is located an insert valve and a rim lip for retention of the vehicle tire bead, said insert casing including an insert bead adapted to push against said tire bead and to hold said tire bead firmly against the inner surface of said rim lip, the inner wall of said vehicle tire and the outer surface of said insert casing defining an internal tire space to be pressurized for inflation of said vehicle tire or depressurized for the deflation of said vehicle tire via said insert valve, said tire bead and said insert bead interposed between said internal tire space and said insert valve, said bead spacer extending from said insert bead to a valve area to define at least one air passageway for communication of said internal tire space with said insert valve, wherein said bead spacer is made of material sufficiently flexible to substantially conform to the contours of said wheel rim and sufficiently incompressible in at least one dimension to provide said air passageway, wherein said bead spacer comprises a

pair of parallel rectangular strips defining said air passageway therebetween.

10. (Canceled)

11. (Currently Amended) A beadlock ~~according to claim 1~~ comprising an insert casing and a bead spacer for providing an air passageway in a vehicle tire to be mounted on a wheel rim on which is located an insert valve and a rim lip for retention of the vehicle tire bead, said insert casing including an insert bead adapted to push against said tire bead and to hold said tire bead firmly against the inner surface of said rim lip, the inner wall of said vehicle tire and the outer surface of said insert casing defining an internal tire space to be pressurized for inflation of said vehicle tire or depressurized for the deflation of said vehicle tire via said insert valve, said tire bead and said insert bead interposed between said internal tire space and said insert valve, said bead spacer extending from said insert bead to a valve area to define at least one air passageway for communication of said internal tire space with said insert valve, wherein said bead spacer is made of material sufficiently flexible to substantially conform to the contours of said wheel rim and sufficiently incompressible in at least one dimension to provide said air passageway, further including comprising an apron extending from said insert bead in use to said insert valve

area to protect said inner tube against damage from said insert valve.

12-14 (Canceled)

15. (Currently Amended) A beadlock ~~according claim 14 for~~ four wheel drive or low pressure applications comprising an insert casing and a bead spacer for providing an air passageway across an insert bead of the bead lock in a vehicle tire, said insert casing comprising an insert bead made from tightly woven fabric which is substantially incompressible in at least one dimension to define said air passageway, wherein said bead spacer comprises a pair of parallel rectangular strips defining said air passageway therebetween.

16. (Canceled)

17. (New) A vehicle pneumatic tire and wheel rim assembly for low tire pressure or off-road uses comprising:

a vehicle tire having two spaced peripheral tire beads;
a wheel rim on which is located an insert valve and having spaced rim lips receiving therebetween and for retaining the tire beads;

an inflatable inner tube surrounding said wheel rim and being located within said vehicle tire and between said peripheral tire beads; and

a beadlock which comprises:

an insert casing receiving said inner tube therein and having two spaced peripheral insert beads adapted to be pushed upon inflation of said inner tube against respective ones of said tire beads so as to hold said tire beads firmly against inner surfaces of the respective said rim lips,

a bead spacer providing an air passageway to an internal tire space defined between an inner wall of said vehicle tire and the outer surface of said insert casing so that the internal tire space can be pressurized for inflation of said vehicle tire or depressurized for the deflation of said vehicle tire via said insert valve, one of said tire beads and its respective said insert bead being interposed between said internal tire space and said insert valve, and said bead spacer extending from said insert bead to an insert valve area where said insert valve is located whereby to define at least one air passage for communication of said internal tire space with said insert valve, said bead spacer being made of material sufficiently flexible to substantially conform to the contours of said wheel rim and sufficiently incompressible to provide said air passageway.

18. (New) An assembly as claimed in claim 17 wherein said insert casing is made of a woven fiber material.

19. (New) An assembly as claimed in claim 17 wherein said insert casing includes a strong, flexible and substantially inelastic circumferential band to limit radial expansion of the inner tube therein when inflated.

20. (New) An assembly as claimed in claim 19 wherein said insert casing further includes two side walls of flexible material extending generally radially inwardly from opposite sides of the circumferential band and having said two peripheral insert beads extending around the peripheral edges of the side walls.

21. (New) An assembly as claimed in claim 20 wherein each of said insert beads is made of a woven material strongly affixed to the peripheral edges of the side walls.

22. (New) An assembly as claimed in claim 21 wherein said woven material is doubled over the peripheral edge of the respective side wall and stitching is applied to attach the doubled over layers of woven material to the peripheral edge of the respective side wall.

23. (New) An assembly as claimed in claim 17 wherein said side walls are made of a flexible material of lighter gauge than

the circumferential band so as to readily flex to enable the insert beads to move axially outwardly upon inflation of the inner tube to thereby bear against the peripheral tire beads of the vehicle tire and press the tire beads into strong engagement with the inner surfaces of the respective said rim lips.

24. (New) An assembly according to claim 17, wherein said bead spacer is light weight and mounted to said insert bead.

25. (New) An assembly according to claim 17, wherein said bead spacer includes at least two spacer members which together define therebetween said air passageway.

26. (New) An assembly according to claim 17, wherein said bead spacer is made from a woven material.

27. An assembly according to claim 26, wherein said bead spacer is made from tightly woven material and is substantially incompressible in at least one dimension.

28. (New) An assembly according to claim 26, wherein said bead spacer is in the form of one or more ribbons or strips of thick woven material.

29. (New) An assembly according to claim 26, wherein said bead spacer is made from tightly woven polyester fabric.

30. (New) An assembly according to claim 17, wherein said bead spacer is made from a solid polymeric material.

31. (New) An assembly according to claim 17, wherein said bead spacer is in the form of a rectangular strip.

32. (New) An assembly according to claim 17, and further including an apron extending from said insert bead to said insert valve area and overlying the adjacent surfaces of the wheel rim to protect said inner tube against damage from said insert valve.

33. (New) A beadlock for a vehicle pneumatic tire and wheel rim assembly for low tire pressure or off-road uses said assembly in use comprising:

a vehicle tire having two spaced peripheral tire beads;

a wheel rim on which is located an insert valve and having spaced rim lips receiving therebetween and for retaining the tire beads;

an inflatable inner tube surrounding said wheel rim and being located within said vehicle tire and between said peripheral tire beads;

the beadlock comprising:

an insert casing for receiving said inner tube therein, said insert casing including a strong, flexible and substantially inelastic circumferential band to limit radial expansion of the inner tube therein when inflated, and two side walls of flexible material extending generally radially inwardly from opposite sides of the circumferential band and having two peripheral insert beads extending around the peripheral edges of the side walls, the insert beads being adapted to be pushed in use upon inflation of said inner tube against respective ones of said tire beads so as to hold said tire beads firmly against inner surfaces of the respective said rim lips, and

a bead spacer for providing an air passageway to an internal tire space defined between an inner wall of said vehicle tire and the outer surface of said insert casing radially beyond the circumferential band so that the internal tire space can be pressurized for inflation of said vehicle tire or depressurized for the deflation of said vehicle tire via said insert valve, whereby in use one of said tire beads and its respective said insert bead is interposed between said internal tire space and said insert valve, and said bead spacer can extend from said insert bead to an insert valve area where said insert valve is located whereby to define at least one air passage for communication of said internal tire space with said insert valve,

said bead spacer being made of material sufficiently flexible to substantially conform to the contours of said wheel rim and sufficiently incompressible to provide said air passageway.

34. (New) A beadlock as claimed in claim 33 wherein said insert casing is made of a woven fiber material.

35. (New) A beadlock as claimed in claim 33 wherein each of said insert beads is made of a woven material strongly affixed to the peripheral edges of the side walls.

36. (New) A beadlock as claimed in claim 35 wherein said woven material is doubled over the peripheral edge of the respective side wall and stitching is applied to attach the doubled over layers of woven material to the peripheral edge of the respective side wall.

37. (New) A beadlock as claimed in claim 34 wherein said side walls are made of a flexible material of lighter gauge than the circumferential band so as to readily flex to enable the insert beads to move axially outwardly upon inflation of the inner tube to thereby bear against the peripheral tire beads of the vehicle tire and press the tire beads into strong engagement with the inner surfaces of the respective said rim lips.

38. (New) A method of operating a wheeled vehicle having pneumatic tires on the wheels thereof with the inflation pressures of the pneumatic tires being significantly lowered from normal operating tire inflation pressures to thereby substantially increase the foot print of the pneumatic tires to thereby increase traction and/or provide greater cushioning, each wheel of the vehicle having a vehicle pneumatic tire and wheel rim assembly comprising: a vehicle tire having two spaced peripheral tire beads; and a wheel rim on which is located an insert valve and which has spaced rim lips receiving therebetween and retaining the vehicle tire beads; said method comprising the steps of:

providing for each vehicle wheel and locating within the tire of each wheel:

an inflatable inner tube surrounding said wheel rim and located within said vehicle tire and between said peripheral tire beads; and

a beadlock which includes an insert casing receiving said inner tube therein and having two spaced peripheral insert beads on opposite sides of said inner tube, and a bead spacer providing an air passageway to an internal tire space defined between an inner wall of said vehicle tire and the outer surface of said insert casing so that the internal tire space can be pressurized

for inflation of said vehicle tire or depressurized for the deflation of said vehicle tire via said insert valve, one of said tire beads and its respective said insert bead being interposed between said internal tire space and said insert valve, and said bead spacer extending from said insert bead to an insert valve area where said insert valve is located whereby to define at least one air passage for communication of said internal tire space with said insert valve, said bead spacer being made of material sufficiently flexible to substantially conform to the contours of said wheel rim and sufficiently incompressible to provide said air passageway;

inflating said inner tube so that the inner tube is confined against substantial radial expansion by said insert casing and expands axially to push the peripheral insert beads of the insert casing against respective ones of the tire beads so as to hold the tire beads firmly against the inner surfaces of the respective rim lips of the wheel rim whereby the insert casing adopts a low profile within the vehicle tire;

pressurizing the internal tire space by means of said insert valve to a relatively low pressure and thereafter operating the vehicle whereby the vehicle tire is securely retained by the beadlock to the wheel rim; and

at the end of a period of operation of the vehicle with the tires inflated to a relatively low pressure, increasing the

inflation pressure in the internal tire space of each tire via said insert valve for further operation of the vehicle at normal operating tire inflation pressures.

39. (New) A method as claimed in claim 38 wherein the vehicle is operated in an off road environment with the tires being deflated for increasing the footprint of each tire and thereby increasing traction.

40. (New) A method as claimed in claim 38 wherein for each vehicle tire said inner tube remains permanently inflated irrespective of the use to which the vehicle is being put and irrespective of whether the inflation pressure in the internal tire space is relatively low or deflated for increased tire footprint or is relatively highly inflated for uses requiring smaller tire footprint.

41. (New) A vehicle pneumatic tire and wheel assembly comprising:

a wheel rim having a shoulder and a rim lip;
an inner tube placed around said wheel rim;
an insert casing comprising an inelastic circumferential band having attached flexible sidewalls and an attached insert bead, said insert casing placed over said inner tube, whereby

said inelastic circumferential band prohibits radial expansion of said insert casing upon inflation of said inner tube yet permits the flexible sidewalls and the attached insert bead to extend axially towards the rim lip of said wheel rim;

a tire having a tire bead placed on said wheel rim; and

a flexible elongated spacer positioned between the attached insert bead and the tire bead adjacent the shoulder of the wheel rim and extending to a valve area,

whereby upon inflation of said inner tube the attached insert bead is forced axially towards the tire bead and adjacent said flexible elongated spacer forming a passage between said wheel rim, said flexible elongated spacer, and the tire bead permitting an internal tire space adjacent said tire to be inflated separately from said inner tube.